# ON THE STATE OF THE MULTI-COMPETENT MIND

*Jolanta Latkowska*

## 1. INTRODUCTION

Extensive research into second language acquisition and bilingualism has brought about the realization that knowledge of more than one language has a profound impact on the individual, who as a result is likely to diverge from the monolingual population not only in terms of observable linguistic ability but also with regard to general knowledge and cognition. To embrace this finding and give it a firm theoretical footing, COOK (1996: 65, 2002, 2003) coined the term multi-competence, which he defined as "knowledge of more than one language in the same mind". This definition expands the Chomskyan[1] notion of competence, which adopted the model of the ideal monolingual speaker/hearer who was in possession of a fairly homogeneous, if not monolithic, body of knowledge as a result of UG-constrained interactions with the environment. However, multi-competence does not imply monolingual command of either the L1 or L2. In fact, COOK (2005) understands it as a state of mind containing the L1 along with the L2 interlanguage, where the latter is seen as a system in its own right, an idea developed by SELINKER (1974) and refined by L2 acquisition research (ARABSKI, 1979, 1997; CORDER, 1981 a; LARSEN-FREEMAN, 1976 b). Furthermore, both languages constitute a dynamic system that is characterized by varying degrees of separation and/or conflation in different language subsystems, which in turn, gives rise to varying degrees of interaction and influence

[1] The classical Chomskyan definition of competence portrayed it as knowledge of language in the speaker's mind (COOK, 1996).

across the board. In essence, multi-competence captures the totality of two multi-layered language systems encapsulated in the individual mind.

Recently, the scope of the term has been broadened by researchers investigating third language acquisition and multilingualism (Cenoz, 2001, 2003), as well as those probing the simultaneous acquisition of two (native) languages (Pavlenko, 2003). This undoubtedly has added a universal dimension to the concept, which is now used to refer to cases of multilingualism in general, and is perceived as a dynamic and partially integrated amalgam of all the languages that the individual knows, rather than as separate, inflexible, and stable grammars for the relevant L1, L2, L3 and the like (Jarvis, 2003). A point worth mentioning is that the constituent languages may be "subject to variation and change over time" (Herwig, 2001: 115).

## 2. THE CONTENTS OF THE MULTI-COMPETENT MIND

### 2.1. INTERLANGUAGE

Steeped in the assumption that a vast majority of mankind speaks more than one language, multi-competence offers a solution to what seems to be the logical problem of second language acquisition, namely, the language learner's generic inability to become the L2's native speaker by virtue of developing native-like competence in the language. Strongly opposed to this idea, Cook devoted a lot of attention to redefining the position of the language learner by introducing a distinction between language learners, i.e. those who learn the language for later use, and actual L2 users. He also emphasized the unique and rule-governed character of interlanguage, which should not be conceived of as the outcome of incomplete or unsuccessful acquisition, or discussed in monolingual terms (Cook, 1996, 2002, 2003). This, incidentally, was instrumental in discarding the monolingual native speaker as a benchmark for standards in SLA and bilingualism research, in line with Romaine's (1995) contention that a reasonable account of bilingualism cannot be based on a theory which assumes monolingual competence as its frame of reference.

Empirical support for these ideas came from well-documented research into L2 learning, whose findings indicated that, apart from elements patterned on both the L1 and L2, interlanguage contained unique structures that could not be ascribed to either language (Burt and Dulay, 1974). Moreover, similar deviant forms could be found in the output of individuals who came from various L1 backgrounds, and who, nevertheless, showed surprising uniformity and predictability of development (Klein and Perdue, 1997). Additionally, a study by

COPPETIERS (1987), who investigated the grammaticality judgments of highly proficient L2 French users in France, revealed that their L2 knowledge diverged from that of monolingual native speakers, thus adding fuel to claims of qualitative differences between bilinguals and monolinguals with regard to linguistic knowledge. It also added force to the notion that the L1 and the emergent L2 are two distinct systems, which are interlocked in a single super-system and accommodate to each other (COOK, 2003).

The development of interlanguage has been the subject of intensive inquiry for almost 40 years and as such has become the core of SLA research and theory. For more details regarding the relevant literature and findings see DOUGHTY and LONG (2003).

## 2.2. THE L1

Since the original formulation of multi-competence drew heavily on the Chomskyan tradition, which defined competence as the knowledge of "an ideal speaker-hearer in a completely homogeneous speech community" (CHOMSKY, 1965: 4), there seemed to be a consensus, at least in the applied linguistics circles, that L1 competence or mono-competence was a mature and stable system that was not liable to developmental change past a certain maturational point (ADJEMIAN, 1976; MACWHINNEY, 1997). This stands in stark contrast to findings from sociolinguistics, child language development and cognitive linguistics (HALL et al., 2006), which provide convincing evidence for a usage-based view of language knowledge. More specifically, the exponents of the view contend that linguistic knowledge is shaped by experience and participation in discourse practices typical of a particular speech community, as well as being contingent on factors such as the frequency of use and registerial variety, social class, race, region, gender, ethnicity, and communicative practice (HALL et al., 2006). What this implies is that language knowledge varies across speakers, and that an increase in experience with language will inevitably result in a change in overall language awareness. To put it another way, linguistic competence, whether monolingual or bilingual, varies diachronically over the lifespan, and syncronically across individuals. It is a dynamic "constellation of constructs" (HALL et al., 2006: 8), which are derived from context-dependent language use and are subject to constant adaptation and change. In the light of this theory, exposure to another code and related communicative activities simply adds to the dynamism of adaptation, which is usage rather than language (system) dependent (HALL et al., 2006). The extent and potential areas of L2-induced influence on the L1 within the multi-competent mind are discussed below.

## 2.3. THE L2 → L1 INTERACTION

The data on L2 → L1 influence constitutes a substantial body of evidence that is cited in support of multi-competence (COOK, 2002, 2003). Regardless, there is a theoretical possibility that the L1 may be unaffected by the L2, which is in accord with the separation view of bilingual memory (GROSJEAN, 1982), as well as with claims that mature L1 systems stabilize and are therefore unlikely to change (cf. MACWHINNEY, 1997). Systemic separation is also central to GROSJEAN'S (2001) language mode model, which posits that the bilingual's languages are independent yet affect each other because they remain active during language processing in either language. This is why it is possible to find interferences from the other language in the speech of a bilingual who is in a monolingual mode (GROSJEAN, 2001). By contrast, COOK (2002, 2003) points out that complete separation, if at all possible, is not likely to apply to the whole language system but to particular subsystems. For example, L1 and L2 cognate vocabulary may be (partially) conflated (DEGROOT and KROLL, 1997) with the extent of conflation varying according to the semantic features shared by the words concerned, proficiency in both languages, their genetic closeness, as well as preferences demonstrated by particular individuals with regard to language mixing (COOK, 2002).

Another possibility that has received considerable empirical support is that the knowledge and use of **the L1 may be enhanced by the knowledge and use of an L2**. For example, KESCKES and PAPP (2000) found that Hungarian L2 learners who had undergone intensive L2 training in a formal school setting demonstrate a quantifiable difference from monolinguals in areas such as L1 sentence structure and complexity, as well as lexical choice and usage. In their opinion, in a predominantly monolingual setting one can hardly expect the L2 to affect the L1 directly, i.e. in terms of syntactic transfer or lexical borrowing. In such circumstances, the L2 enhances literacy skills, which results in a more sophisticated and elaborate L1 use, as compared to monolinguals. Positive evidence has also been accumulating with regard to the acquisition of literacy skills. BASSETTI (2005) reports that learning a more phonologically transparent L2 writing system may improve L1 reading, writing and phonological awareness, as evidenced by English-speaking children who learnt L2 Italian and did better than monolingual English-speaking children in English word reading and spelling (cf. YELLAND et al., 1993).

The concept of language enhancement may also be used to account for the findings of JARVIS (2003), who discovered that extensive exposure to the L2 in its natural environment may result not so much in attrition as in the actual expansion of the L1 lexicon. What this means in practice is that conventional L1 forms may occur alongside L2-induced ones in both production and comprehension, thus adding to the bilingual's expressive power and linguistic repertoire

(cf. SHARWOOD SMITH, 1983 a; LATKOWSKA, 2001). Moreover, the nature of the task the bilingual is required to perform will have a marked impact on the degree of observed L2 influence and variability in language use. It cannot escape notice, however, that such L2-induced patterns may be violations of L1 norms.

In addition to enriching the L1, **the L2 may also instigate an L1 restructuring process, which will result in a linguistic system in its own right, showing neutral and/or interfering L2 effects**. The concept of multi-competence exemplifies such a process in that it entails the existence of a dynamic linguistic system that is not simply a sum of two linguistic competencies (GROSJEAN, 1998). There is ample evidence to give weight to this contention, as numerous L2-induced effects amount to differences between the L1 of monoglots and that of bilinguals. Moreover, such effects are wide-ranging and can be observed in most, if not all, domains of language as discussed below.

**The lexicon:** research in this area has confirmed that bilinguals' L1 and L2 lexicons (DEGROOT, 1997; KROLL and TOKOWICZ, 2001) are both active during on-line language processing. Such was the finding of SPIVEY and MARIAN (1999) who investigated eye movement during a picture naming task in the L1, and observed that bilinguals were distracted by L2 cognates. What is more, interpretation of L1 words is affected by the L2. For example, COOK (2005) shows that the understanding of the Japanese word "bosu" (gang leader) has a more general meaning for those Japanese who know the English 'boss'. It cannot escape notice, however, that these particular interference effects might have been intensified by the cognate status of the words in question. On the performance level, the L2 may make its presence felt in the form of borrowing, calques, semantic extensions, as well as a loss of semantic distinctions and word retrieval problems (PAVLENKO, 2003).

A mention also has to be made of a phenomenon which occurs at the vocabulary — syntax interface, namely framing transfer (PAVLENKO, 2002). It consists in the choice of linguistic structures used to express ideas in a way that is unique to a particular speech community, thus exemplifying its lexical and conceptual preferences. For example, English uses adjectives, e.g. happy, sad, and a few intransitive verbs, e.g. rejoice, to refer to emotions, which are perceived as passive states, while languages such as Polish and Russian portray emotions as active processes, a tendency reflected in the predominance of intransitive verbs in the emotional lexicons of both languages, e.g. *cieszyć się* (cf. WIERZBICKA, 1999). Framing transfer has been found to consistently occur in the speech of Russian-English bilinguals, who often adopt the L2 adjectival pattern when describing emotional situations. What is more, it can also be detected in a variety of language pairings in contexts which express concepts ranging from definiteness to causation (PAVLENKO and JARVIS, 2008).

**Phonology:** as documented by NATHAN (1987), the voice onset time patterns for plosives such as *t* and *d* in the speech of L2 Spanish users do not resemble

those observed in L1 English monolinguals. Other researchers report similar results for the following plosives /*k*, *g*, *p*, *b*/ in language pairings such as Spanish/English (Zampini and Green, 2001), French/English (Flege, 1987), and Hebrew/English (Obler, 1982), and for intonation in Dutch/Greek (Mennen, 2004) and German/Turkish (Queen, 2001). It must be stressed, however, that these effects are often undetectable in normal language use.

**Syntax:** L2-induced restructuring of the syntactic domain can be observed in the tendency of Greek-English bilinguals to use pre-verbal subjects in L1 Greek, which is a pro-drop language, more often than monolinguals (Tsimpli et al., 2004). By the same token, Japanese, Greek and Spanish users of non-pro-drop English prefer the first noun in the sentence to be the subject when processing sentences in their native languages (Cook, 2003).

Among the effects that may result in violations of the L1's norms is the tendency to copy the English SVO sentence pattern into a language that has a freer word order (Jarvis, 2003), and to break subcategorization rules by, e.g. following L1 Russian reflexive verbs with adjectives in the nominative case by analogy to L2 English (Pavlenko, 2003; Pavlenko and Jarvis, 2001).

Perhaps the most extreme form of L2 intrusion into the system of the first language is **L2 — induced attrition** (Kőpke and Schmid, 2004), which involves a permanent loss and/or restructuring of L1 elements. These manifest themselves as the inability to produce, perceive, understand and/or recognize previously available L1 items. The accumulated evidence indicates that attrition affects lexico-semantics, pragmatics, rhetoric, conceptual representations (Pavlenko, 2004) and to a lesser extent, syntax and morphology, except for case-marking (Schmid et al., 2004; Hutz, 2004). For attrition to be deemed occur, loss effects must be exhibited permanently in both L1 and L2 contexts.

## 2.4. CONCEPTUAL DOMAIN

One of the key issues surrounding the debate over cross-linguistic effects in the conceptual domain is whether word meanings and related lexicalized concepts are autonomous or overlapping levels of representation (for details see Pavlenko, 1999; Francis, 2005; Paradis, 2004; Kroll and Tokowicz, 2005). So far, research in this field has provided conflicting evidence but some of it undoubtedly points in the direction of inter-systemic interaction and Whorfian effects (Levinson, 2003), which reveals the strength of the relationship between language and concepts as exemplified by thought. A staunch supporter of semantic/conceptual separation, Pavlenko (1999; cf. Pavlenko and Jarvis, 2008) provides an exhaustive list of the processes that seem to both instigate and instantiate cross-linguistic interaction at the conceptual level. The list runs as follows:

— the internalization of new L2 — based concepts that are either distinct from or non-existent in the L1; examples include lexical borrowing, code-switching and calquing, which are often used by immigrants to patch up gaps in their native vocabulary and related conceptual base, e.g. 'privacy' in the Russian of Russian immigrants to the US (PAVLENKO, 2003);
— restructuring, which involves the incorporation of new elements into the existent concepts, i.e. late Russian-English bilinguals do not use their L1 equivalents of jealousy/envy like Russian monolinguals but instead move towards L2 speakers' preference for jealousy, which refers to both jealousy and envy situations (SACHS and COLEY, 2006);
— convergence, that is the creation of a new concept that combines the features of both L1 and L2; a case in point is the tendency of Japanese L2 English learners to distinguish two blue and two green colours in contrast to monolinguals (ATHANASOPOULOS, SASAKI and COOK, 2004, cited in COOK, 2005);
— shift, which denotes a preference for an L2 based category: Japanese users of L2 English tend to move towards counting objects rather than substance (ATHANASOPOULOS, 2006), and towards categorization in terms of shape, by analogy to L2 English; Japanese categorizes objects according to the material they are made of (BASSETTI et al., 2006);
— conceptual attrition, where L1 concepts are either permanently lost or substituted for; as PAVLENKO and JARVIS (2008) observe, conceptual attrition may be difficult to detect as its most common signs include the use of verbal strategies such as calquing or borrowing, which may also be indicative of other processes involved in conceptual change.

To conclude, all of these processes imply that bilinguals have a larger and more varied conceptual store than monolinguals, and that their perception and thinking patterns may diverge from those exhibited by monolinguals. Without a shadow of a doubt, more research is needed to ascertain the exact extent of language-induced conceptual transformation, the required timeframe, and the specific linguistic and cultural conditions for its occurrence.

## 3. COGNITIVE DIFFERENCES

Research into the cognitive domain of bilingual functioning constitutes yet another body of evidence used by Cook in support of multi-competence. In a nutshell, its findings indicate that in certain areas bilingual cognition is qualitatively different from that of monolinguals. Accordingly, bilinguals are either at a disadvantage or have a clear advantage over monolinguals. Since the re-

ported differences have to do with language-dependent and language-neutral developments, the following sections will present a summary of the essential findings in both fields.

## 3.1. LANGUAGE — NEUTRAL COGNITIVE EFFECTS

The view that has persisted over the past four decades or so is that bilinguals exceed at tasks that require creativity (divergent thinking), as manifested by the unusual uses of objects test (TORRANCE, 1974; RICCIARDELLI, 1992); and flexibility in thought (BIALYSTOK, 2005). This can be explained as a direct consequence of having to process alternative ways of referring to the same reality, which in BIALYSTOK'S (2005) view, boosts the development of inhibition and control of attention mechanisms, which in turn help bilingual subjects ignore misleading information. Incidentally, this explanation also applies to the seminal PEAL and LAMBERT (1962) study in which balanced bilinguals outperformed monolinguals on both verbal and non-verbal measures. Additionally, bilinguals show an advantage in areas such as spatial tasks that require the use of mental imagery (MCLEAY, 2005), theory of mind tasks focussing on the expectations and assumptions that people bring to bear in scenarios built around contradictory facts (BIALYSTOK, 2005), field-independence as measured by the imbedded figures test (BALKAN, 1970, cited in BAKER, 2001) and concept formation (BAIN, 1974, cited in BIALYSTOK, 2005). There can be no doubt that these reports demonstrate the positives of bilingualism. They should be treated with caution, however, since some of the effects may be age-related and hold true for a particular age group only. More specifically, most of the studies focus on young children in an educational setting, which makes them irrelevant to older populations that are often deprived of educational opportunities (cf. BAKER, 2001). This warning becomes all the more potent in the light of the fact that not all the findings are uniformly positive. Namely, there are a number of studies showing that bilinguals are disadvantaged in mathematics. That is to say that they need more time to solve mental arithmetic problems, especially in their weaker language (for a review of pertinent research see BIALYSTOK, 2005). This difficulty is attenuated when the problem is presented in a numerical form or in the bilingual's stronger language, and when bilinguals receive verbally-mediated training in the areas they are subsequently tested in. In SPELKE and TSIVKIN'S (2001) opinion, this indicates that mathematical ability is dependent on the language it was coded (learnt) in. As this tendency has also been observed in adult bilinguals, who sometimes take longer to solve problems in both their languages, the inescapable conclusion is that bilingualism imposes certain cognitive constraints on mental operations. BIALYSTOK (2005) also suggests that, at least in the case of children, language proficiency seems to be a factor to con-

sider as those who are tested in their stronger language show normal mathematical ability. It is only when the complexity of the task exceeds the bilingual's proficiency level that negative effects are observed.

Negative effects have also been found in research into memory, with bilinguals consistently underperforming on tasks investigating the capacity of short term memory (STM) in their L2, which is less well developed. In short, the number of digits that the STM retains is markedly lower than in the L1. It does increase with proficiency in the L2, however. This hints at the possibility that STM is less efficient in the L2, a phenomenon which Cook (1997) labelled the cognitive deficit.

## 3.2. LANGUAGE-RELATED COGNITIVE EFFECTS

The tendencies observed in the area of language-dependent developments suggest that knowledge of another code does not so much affect the accuracy of language use as the speed of its processing. More specifically, bilinguals require more time to comprehend and judge sentences/utterances in comparison with monoglots (Cook, 1997). Mägiste (1979) also found they were 0.2 seconds slower when naming objects in their L2 and when following commands in that language. Long and Harding-Esch (1977) found that students of L2 French at university level remembered less from lectures given in L2 French than in L1 English. Their memories were also less accurate. Bialystok (2005) reports that the growth of oral proficiency is usually delayed in bilingual children, who also tend to have smaller receptive vocabularies. Still, it cannot escape notice that some of the deficiencies reported in the literature appear to be insignificant in comparison with the benefits bestowed by the ability to communicate in two languages. What is more, there is an overwhelming body of evidence testifying to the existence of advantages that bilinguals have over monolinguals. These include greater metalinguistic awareness, a finding that has remained undisputed despite repeated attempts to verify it (Cook, 1997; Bialystok, 2004), greater ability to reproduce new sounds, and relate them to some form of script (Cook, 1997), more rapid development in terms of the capacity to notice and correct errors (Galambos and Goldin-Meadow, 1990). Furthermore, Bialystok (2004) argues in favour of greater control of language-based processes, (1987), faster semantic development (Ben-Zeev, 1977), better understanding of the concept of a word (Bialystok, 2004) and of its arbitrariness (Ianco-Worrall, 1972). Finally, Genesee et al. (1975) makes a case for higher communicative sensitivity in bilinguals, which amounts to increased familiarity with the sociocultural milieu and its constant fluctuations.

At the same time, both Baker (2001) and Bialystok (2005) sound a note of caution stating that these results are not uniformly indicative either of a definite

bilingual advantage or of a handicap. The reasons for BAKER'S (2001) cautious approach lie in methodological concerns as few of the studies controlled for the subjects' age and socioeconomic background, as well as for proficiency in the languages involved. What is more, some of them lacked a representative sample and precise definitions of the terms examined. BIALYSTOK (2004) in turn maintains that it is necessary to consider a variety of factors while evaluating bilingual research findings. The acquisition of literacy is a case in point. Namely, studies of reading ability in bilingual children reveal transfer of abilities across languages, even in cases when one of them uses a different writing system, as in, e.g. English and Hebrew. However, what is transferred are general reading skills such as phonological and discourse awareness. Research shows that they are transferred regardless of whether literacy was first trained in the L1 or L2 (CUMMINS, 2000). Language specific skills such as the knowledge of different codes, writing systems and orthographies need to be acquired and trained separately. In CUMMINS' (2000) view, automatic transfer of academic skills will not take place across languages if bilinguals are deprived of opportunities to read and write extensively in both languages. BIALYSTOK (2005) also believes that some language specific factors may have an impact on the acquisition of reading skills in the bilingual's other language. These include the typological distance between the languages in question and similarity of their writing systems, as they determine the strategies employed to tackle reading in different languages. For example, phonological awareness is not a factor in learning to read Chinese but visual skills are (HUANG and HANLEY 1997). The conclusion to be drawn from BIALYSTOK'S (2005) research is that bilingualism as such may not be a factor in cognitive development. Its role may be reduced to endowing individuals with general skills and cognitive mechanisms, which may accelerate the learning of other general and language-dependent skills. This, in her opinion, is due to the increased ability to use selective attention and ignore misleading information, which is enhanced in bilinguals.

## 4. THE ONSET OF MULTI-COMPETENCE

Another issue that merits consideration is under what conditions an L2 user's mind becomes multi-competent in character, and whether there is a threshold at which bilingualism begins to bestow cognitive benefits. Unfortunately, so far attempts to answer this question have met with little success due to conflicting evidence and inconsistent theoretical positions. In short, researchers cannot agree on definitions of key terms in bilingualism research such as language proficiency, what constitutes a language and what makes it different

from a dialect, or indeed bilingualism itself. For instance, in defining the L2 user, COOK (2002) refers to HUAGEN'S minimal definition, which portrays bilingualism as "the point where a speaker can first produce complete meaningful utterances in the other language" (1953: 7). BIALYSTOK (2005: 426), by contrast, claims that there is a certain threshold of proficiency below which it becomes debatable whether individuals are bilinguals or second language learners. The evidence obtained to date indicates that some L2 → L1 effects can be observed relatively early in the language learning/acquisition process. COOK (2002), for instance, claims that even minor exposure to other languages may affect the L1 knowledge and grammaticality judgements of particular individuals. YELLAND et al. (1993) discovered a slight advantage in the acquisition of reading in English children who were taught a foreign language for an hour a week. The advantage was observed in some tasks only and disappeared after a year of training. PAVLENKO (2002) detected L2 effects in the narratives produced by Russian subjects who stayed in the L2 environment for only 1.5 years (PAVLENKO, 2002). Still, they were proficient enough in their L2 English to be enrolled in an American university. By the same token, children learning L2 French in Canadian immersion programmes outperform monolinguals on tasks that tap into awareness of the disparity between form and meaning. In BIALYSTOK'S (2004) opinion, those children had limited proficiency in the L2, which was learnt in a school setting; still it was high enough to boost their metalinguistic awareness. She stresses, however, that some of the effects can only be detected during the initial stages of L2 contact and tend to disappear later, which was confirmed by other studies investigating metalinguistic and literacy skills in children, both monolingual and bilingual (BIALYSTOK, 2004). All in all, these data indicate that proficiency in the L2 may be a major factor in the onset of multi-competence. At the same time, PAVLENKO and JARVIS (2002) observe that the length of exposure to the L2 does not significantly affect the amount or directionality of language transfer, a phenomenon attributed to multi-competence, even though LAUFER (2003) found the length of residence in an L2 country to be significant in a study of lexical knowledge in bilinguals.

There is also evidence to suggest that multi-competence develops as a result of exposure to the L2 even in a foreign language context. CENOZ (2003) found that Spanish university students of L3 English, who were fluent in the language, exhibited requesting behaviour that significantly diverged from monolingual norms. On the other hand, it is necessary to bear in mind the views of researchers such as PAVLENKO (1999) who argues that the prerequisite for the development of multi-competence is exposure to the L2 in its natural environment, as well as authentic communication with its users. Such conditions do not exist in the majority of foreign language classes where L2 learning is reduced to the explicit learning of a new code (PAVLENKO, 1999). As KECSKES and PAPP (2000 a) found, however, meaningful communication in the L2 is essential on

immersion and intensive language programmes, where the L2 is used as a medium of instruction, and where learners are required to use all four language skills to achieve non-linguistic educational objectives, which may compensate for the lack of direct contact with the target culture. They retracted this statement in their later publication (KECSKES and PAPP, 2000 b) saying that the development of multi-competence in a classroom setting was only a potential.

Insights into the onset of multi-competence can also be derived from the hierarchical model of bilingual memory (DEGROOT, 2002; DEGROOT and KROLL, 1997; KROLL and TOKOWICZ, 2001). It posits the existence of two separate lexicons and a single semantic/conceptual store, which is shared by both languages. The lexicons are interconnected. Tests involving bilinguals at different levels of proficiency show that L2 learners initially access concepts through words in the L1. It is only when they develop fluency (DEGROOT and KROLL, 1997) in the L2 that they begin to directly access concepts in that language, thus manifesting a developmental shift from lexical to conceptual mediation for L2 words, which is determined by increasing expertise in the language. In other words, the model assumes L2 learners' gradual progression from lexis-dependent learning to direct concept mediation for the L2, which, among other things, has been confirmed by word translation studies involving forward and backward translation.

KECSKES and PAPP (2003: 249) discuss these processes in terms of the emergence of a Common Underlying Conceptual Base (CUCB), which they conceive of as a *container* including knowledge, both language-neutral and language-specific, as well as skills except the language system itself. It is the CUCB that is responsible for generating ideas and for the operation of the language channels available to the L2 learner. Since the development of this construct is linked to a high level of L2 proficiency, intensive foreign language training may be a sufficient condition for the acquisition of new concepts and subsequent restructuring of the conceptual base. What needs to be stressed, however, is that in their theory, the L1—L2 influence is largely intellectual and can best be described as skill and knowledge transfer, which affects L1 use as a whole. The idea of a CUCB seems to be modelled on CUMMINS' (1980, 2000) common underlying proficiency (CUP). The CUP is a central processing system which contains the cognitive and linguistic resources available to a particular individual, along with the conceptual and linguistic representations derived from both experience and learning. It is the extent of mutual influence and interaction within this common system that constitutes the basis for integrated linguistic functioning with world and linguistic knowledge being transferred from one language to another, and new knowledge interpreted against the existent networks. Indeed, in BIALYSTOK'S (2005: 419) view, it is the assumption that linguistic and non-linguistic knowledge are stored together in a domain-general representational system that makes any form of interaction between language(s) and cognition, both language-based and language — neutral, possible.

The question that remains unanswered is whether this interaction is contingent on an identifiable level of proficiency in the languages concerned, as indicated by DeGroot and Kroll (1997) as well as Kesckes and Papp (2000 a, 2000 b, 2003). This question has been addressed by the threshold hypothesis (Cummins, 1976, 2000), which maintains that bilinguals need to achieve high proficiency in both their languages before they can experience cognitive and linguistic advantages. The theory also makes reference to bilinguals with lower proficiency in one of their languages, who will not experience positive or negative effects, and those with low proficiency in both languages, who tend to be negatively affected. The hypothesis sparked a lot of controversy, especially with regard to the lowest level. Interestingly but not surprisingly, more supporting evidence has come to light. For instance, Ricciardelli (1992) found cognitive benefits only among balanced bilinguals and neutral effects among children who were less proficient in their L2. Lee and Schallert (1997) found high correlations between L1 and L2 reading at higher levels of L2 proficiency. Cummins (2000) observes that a major obstacle to this type of research is the lack of precise definitions of terms like proficiency, which is notoriously difficult to qualify in operational terms. This is why the exact threshold level will remain hypothetical and speculative, at least for the time being (Cummins, 2000).

## 5. CONCLUSION

In the light of the data presented in this article there can be no doubt that knowledge of languages has a profound impact on the language user's mind, which undergoes linguistic and cognitive transformation. However, since some of the findings are not uniform, it is advisable to adopt a cautious approach and consider the entire multitude of factors that surround a person's bilingualism, including their language biography, personality, education, as well as sociocultural status and the types of languages spoken. Furthermore, as shown by Arabski (2007), who investigated the use of English loanwords by Polish teenagers, it is necessary to make a distinction between genuine psycholinguistic processes that originate in the (transformed) multi-competent mind and those that result from social pressure and are used to achieve goals that are not always linguistic.

The data also suggest that some of the processes occurring in the bilingual mind border on both language and cognition and that in order to understand them better it will be necessary to apply more precise methodologies that will allow researchers to distinguish between these two levels of representation. Ter-

minology will obviously follow suit as more precise data will call for greater precision of the language used to describe them. Literacy skills are a case in point since although they clearly involve cognitive attributes they manifest themselves through language use and do not exist independently of it. This has led to some inconsistencies in the literature on the subject with researchers using terms such as cognitive, conceptual and literacy skills transfer quite freely. It remains to be seen how 21st c. linguistics resolves these issues and approaches the complexities of the multi-competent mind.

## REFERENCES


ADJEMIAN C. (1976): "On the nature of interlanguage systems". *Language Learning* 26: 297—320.

ARABSKI J. (1979): *Errors as Indicators of the Development of Interlanguage*. Katowice: Wydawnictwo Uniwersytetu Śląskiego.

ARABSKI J. (1997): *Przyswajanie języka obcego i pamięć werbalna*. Katowice: Śląsk.

ARABSKI J. (ed.) (2001): *Insights into Foreign Language Acquistion and Teaching*. Katowice: Wydawnictwo Uniwersytetu Śląskiego.

ARABSKI J. (ed.) (2007): *Changelling Tasks for Psycholinguistics in the New Century*. Katowice: Oficyna Wydawnicza.

ARABSKI J. (2007): "General trends in language transfer studies". In: ARABSKI J. (ed.): *Challenging Tasks for Psycholinguistics in the New Century*. Katowice: Oficyna Wydawnicza, 11—21.

ATHANASOPOULOS P., SASAKI M. and COOK V. (2004): *Do Bilinguals Think Differently From Monolinguals?* Paper presented at EUROSLA, San Sebastian.

ATHANASOPOULOS P. (2006): "Effects of the grammatical representation of number on cognition in bilinguals". *Bilingualism: Language and Cognition* 9 (1): 89—96.

BAKER C. (2001): *Foundations of Bilingual Education and Bilingualism*. Clevedon, UK: Multilingual Matters.

BASSETTI B. (2005): "Effects of writing systems on second language awareness: Word awareness in English learners of Chinese as a Foreign Language". In: COOK V. and BASSETTI B. (eds.): *Second Language Writing Systems*. Clevedon, UK: Multilingual Matters, 335—356.

BEN-ZEEV S. (1977): "The influence of bilingualism on cognitive strategies and cognitive development". *Child Development* 48: 1009—1018.

BHATIA T.K. and RITCHIE W.C. (eds.) (2004): *Handbook of Bilingualism*. Oxford: Oxford University Press.

BIALYSTOK E. (1988): "Levels of bilingualism and levels of linguistic awareness". *Developmental Psychology* 24: 560—567.

BIALYSTOK E. (2004): "The impact of bilingualism on language and literacy development". In: BHATIA T.K. and RITCHIE W.C. (eds.): *Handbook of Bilingualism*. Oxford: Oxford University Press, 575—601.

Bialystok E. (2005): "Consequences of bilingualism for cognitive development". In: Kroll J. and DeGroot A.M.B. (eds.): *Handbook of Bilingualism*. Oxford: Oxford University Press, 417—432.

Brown G., Malmkjær K. and Williams J. (eds.) (1996): *Performance & Competence in Second Language Acquisition*. Cambridge: Cambridge University Press.

Burt H. and Dulay M. (1975): *On TESOL'75: New Directions in Second Language Learning, Teaching and Bilingual Education*. Washington, D.C.: TESOL.

Cenoz J. (2003): "The intercultural style hypothesis: L1 and L2 interaction in requesting behaviour". In: Cook V. (ed.): *Effects of the Second Language on the First*. Clevedon, UK: Multilingual Matters, 62—80.

Cenoz J. (2001): "The effect of linguistic distance, L2 status and age on cross-linguistic influence in third language acquisition". In: Cenoz J., Hufeisen B. and Jessner U. (eds.): *Cross-Linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*. Clevedon, UK: Multilingual Matters, 8—41.

Cenoz J., Hufeisen B. and Jessner U. (eds.) (2001): *Cross-Linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*. Clevedon, UK: Multilingual Matters.

Cenoz J. and Jessner U. (eds.) (2000): *English in Europe: The Acquisition of a Third Language*. Clevedon, UK: Multilingual Matters.

Chomsky N. (1965): *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.

Cook V. (1996): "Competence and multi-competence". In: Brown G., Malmkjær K. and Williams J. (eds.): *Performance & Competence in Second Language Acquisition*. Cambridge: Cambridge University Press, 57—69.

Cook V. (1997): "The consequences of bilingualism for cognitive processing". In: DeGroot A.M.B. and Kroll J.F. (eds.): *Tutorials in Bilingualism*. Mahwah, NJ: Lawrence Erlbaum, 167—195.

Cook V. (ed.) (2002): *Portraits of the L2 User*. Clevedon, UK: Multilingual Matters.

Cook V. (2002): "Background to the L2 user". In: Cook V. (ed.): *Portraits of the L2 User*. Clevedon, UK: Multilingual Matters, 1—27.

Cook V. (ed.) (2003): *Effects of the Second Language on the First*. Clevedon, UK: Multilingual Matters.

Cook V. (ed.) (2003): "Introduction: The changing L1 in the L2 user's mind". In: Cook V. (ed.): *Effects of the Second Language on the First*. Clevedon, UK: Multilingual Matters, 1—18.

Cook V. (2005): *Multi-Competence: Black Hole or Wormhole?* Available online: http://homepage.ntlworld.com/vivian.c/Writings/Papers/SLRF.htm (8 June 2008).

Cook V., Bassetti B., Kasai C., Sasaki M. and Takahashi Jun Arata (2006): "Do bilinguals have different concepts? The case of shape and material in Japanese L2 users of English". *International Journal of Bilingualism* 10 (2): 137—152.

Coppetiers R. (1987): "Competence differences between native and non-native speakers". *Language* 63: 544—573.

Corder P. (1981): *Error Analysis and Interlanguage*. Oxford: Oxford University Press.

Cummins J. (1976): "The influence of bilingualism on cognitive growth: A synthesis of research findings and explanatory hypothesis". *Working Papers on Bilingualism* 9: 1—43.

CUMMINS J. (2000): *Language, Power and Pedagogy: Bilingual Children in the Crossfire*. Clevedon, UK: Multilingual Matters.

DEGROOT A.M.B (2002): "Lexical Representation and Lexical Processing in the L2 User". In: COOK V. (ed.): *Portraits of the L2 User*. Clevedon, UK: Multilingual Matters, 32—64.

DEGROOT A.M.B. and KROLL J.F. (1997): "Lexical and conceptual memory in the bilingual: Mapping form to meaning in two languages". In: DEGROOT A.M.B. and KROLL J.F. (eds): *Tutorials in Bilingualism*. Mahwah, NJ: Lawrence Erlbaum Associates, 167—195.

DEGROOT A.M.B. and KROLL J.F. (1997): *Tutorials in Bilingualism*. Mahwah, NJ: Lawrence Erlbaum Associates.

DOUGHTY C.J. and LONG M.H. (eds.) (2003): *The Handbook of Second Language Acquisition*. Oxford: Blackwell.

FLEGE J.E. (1987): "The instrumental study of L2 speech production: Some methodological considerations". *Language Learning* 37 (2): 285—296.

FRANCIS W. (2005): "Bilingual semantic and conceptual representation". In: KROLL J. and DEGROOT A.M.B. (eds.): *Handbook of Bilingualism*. Oxford: Oxford University Press, 251—267.

GALAMBOS S.J. and GOLDIN-MEADOW S. (1990): "The effects of learning two languages on levels of metalinguistic awareness". *Cognition* 34: 1—56.

GENESEE F., TUCKER G.R. and LAMBERT W.E. (1975): "Communication skills of bilingual children". *Child Development* 46: 1010—1014.

GROSJEAN F. (1998): "Studying bilinguals: Methodological and conceptual issues". *Bilingualism: Language and Cognition* 1: 131—149.

GROSJEAN F. (1982): *Life with Two Languages*. Cambridge, MA: Harvard University Press.

GROSJEAN F. (2001): "The bilingual's language modes". In: NICOL J.L. (ed.): *One Mind, Two Languages*. Oxford: Blackwell, 1—22.

HALL J.K., CHENG A. and CARLSON M.T. (2006): "Reconceptualizing multicompetence as a theory of language knowledge". *Applied Linguistics* 27 (2): 220—240.

HERWIG A. (2001): "Pluralingual lexical organization: Evidence from lexical processing in L1-L2-L3-L4 translation". In: CENOZ J., HUFEISEN B. and JESSNER U. (eds.): *Cross-Linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*. Clevedon, UK: Multilingual Matters, 115—148.

HOFFMAN C. (1991): *An Introduction to Bilingualism*. London: Longman.

HUANG H.S. and HANLEY R.J. (1997): "A longitudinal study of phonological awareness, visual skills and Chinese reading acquisition among first-graders in Taiwan". *International Journal of Behavioural Development* 20 (2): 249—268.

HUTZ M. (2004): "Is there a natural process of decay? A longitudinal study of language attrition". In: SCHMID M., KŐPKE B., KEIZER M. and WEILEMAR L. (eds.): *First Language Attrition*. Amsterdam: John Benjamins, 189—206.

IANCO-WORRALL A.D. (1972): "Bilingualism and cognitive development". *Child Development* 43: 1390—1400.

JARVIS S. (2003): "Probing the effects of the L2 on the L1: A case study". In: COOK V. (ed.): *Effects of the Second Language on the First*. Clevedon, UK: Multilingual Matters, 81—102.

JARVIS S. and PAVLENKO A. (2002): "Bidirectional transfer". *Applied Linguistics* 23/2: 190—214.

JARVIS S. and PAVLENKO A. (2008): *Crosslinguistic Influence in Language and Cognition*. London: Routledge.

KECSKES I. and PAPP T. (2003): "How to demonstrate the conceptual effect of L2 on L1?" In: COOK V. (ed.): *Effects of the Second Language on the First*. Clevedon, UK: Multilingual Matters, 247—265.

KECSKES I. and PAPP T. (2000 a): *Foreign Language and Mother Tongue*. London: Lawrence Erlbaum.

KECSKES I. and PAPP T. (2000 b): "Metaphorical competence in trilingual language production". In: CENOZ J. and JESSNER U. (eds): *English in Europe: The Acquisition of a Third Language*. Clevedon, UK: Multilingual Matters, 99—120.

KLEIN W. and PERDUE C. (1997): "The basic variety (or couldn't natural languages be much simpler?)". *Second Language Research* 13 (4): 301—347.

KŐPKE B. and SCHMID M. (2004): "Language attrition: The next phase". In: SCHMID M., KŐPKE B., KEIZER M. and WEILEMAR L. (eds.): *First Language Attrition*. Amsterdam: John Benjamins, 1—43.

KROLL J. (1993): "Accessing conceptual representations for words in a second language". In: SCHREUDER R. and WELTENS B. (eds.): *The Bilingual Lexicon*. Amsterdam and Philadelphia: John Benjamins, 53—81.

KROLL J. and DEGROOT A.M.D. (2005): *Handbook of Bilingualism*. Oxford: Oxford University Press.

KROLL J. and TOKOWICZ N. (2001): "The development of conceptual representation for words in a second language". In: NICOL J.L. (ed.): *One Mind, Two Languages*. Oxford: Blackwell, 49—71.

KROLL J. and TOKOWICZ N. (2005): "Models of bilingual representation and processing. Looking back and to the future". In: KROLL J. and DEGROOT A.M.D. (eds.): *Handbook of Bilingualism*. Oxford: Oxford University Press, 531—553.

LARSEN-FREEMAN D. (1976): "An explanation for the morpheme acquisition order of second language learners". *Language Learning* 26: 125—134.

LATKOWSKA J. (2001): "The influence of the L2 on L1 competence: A study of crosslinguistic interaction in an L1 environment". In: ARABSKI J. (ed.): *Insights into Foreign Language Acquisition and Teaching*. Katowice: Wydawnictwo Uniwersytetu Śląskiego, 149—162.

LAUFER B. (2003): "The influence of L2 on L1 collocational knowledge and on L1 lexical diversity in free written expression". In: COOK V. (ed.): *Effects of the Second Language on the First*. Clevedon, UK: Multilingual Matters, 19—31.

LEVINSON S. (2003): *Space in Language and Cognition*. Cambridge: Cambridge University Press.

LONG J. and HARDING-ESCH E. (1977): "Summary and recall of text in first and second languages: Some factors contributing to performance difficulties". In: SINAIKO H. and GERVER D. (eds.): *Proceedings of the NATO Symposium on Language Interpretation and Communication*. New York: Plenum, 273—287.

MÄGISTE E. (1979): "The competing linguistic systems of the multilingual: A developmental study of decoding and encoding processes". *Journal of Verbal Learning and Verbal Behaviour* 18: 79—89.

McLeay H. (2003): "The relationship between bilingualism and the performance of spatial tasks". *Bilingual Education and Bilingualism* 6 (6): 423—438.

MacWhinney B. (1997): "Second language acquisition and the competition model". In: DeGroot A.M.B. and Kroll J. (eds.): *Tutorials in Bilingualism*. Mahwah, NJ: Lawrence Erlbaum Associates, 113—142.

Mennen I. (2004): "Bi-directional interference in the intonation of Dutch speakers of Greek". *Journal of Phonetics* 32: 543—563.

Nathan G.S. (1987): "On second language acquisition of voiced stops". *Journal of Phonetics* 15: 313—322.

Nicol J.L. (ed.) (2001): *One Mind, Two Languages*. Oxford: Blackwell.

Obler L. (1982): "The parsimonious bilingual". In: Obler L. and Menn L. (eds.): *Exceptional Language and Linguistics*. New York: Academic Press, 339—346.

Obler L. and Menn L. (eds.) (1982): *Exceptional Language and Linguistics*. New York: Academic Press.

Paradis M. (2004): *A Neurolinguistic Theory of Bilingualism*. Amsterdam: John Benjamins.

Pavlenko A. (1999): "New approaches to concepts in bilingual memory". *Bilingualism: Language and Cognition* 2: 209—231.

Pavlenko A. (2003): "'I feel clumsy speaking Russian': L2 influence on L1 in narratives of Russian L2 users of English". In: Cook V. (ed.): *Effects of the Second Language on the First*. Clevedon, UK: Multilingual Matters, 32—61.

Pavlenko A. (2004): "L2 influence and L1 attrition in adult bilingualism". In: Schmid M., Köpke B., Keizer M. and Weilemar L. (eds.): *First Language Attrition*. Amsterdam: John Benjamins, 47—60.

Peal E. and Lambert W.E. (1962): "The relation of bilingualism to intelligence". *Psychological Monographs: General and Applied* 76 (27): 1—23.

Queen R.M. (2001): "Bilingual intonation patterns: Evidence of language change from Turkish-German bilingual children". *Language in Society* 30: 55—80.

Ricciardelli L.A. (1992): "Bilingualism and cognitive development in relation to threshold theory". *Journal of Psycholinguistic Research* 4: 301—316.

Romaine S. (1995): *Bilingualism*. Oxford: Blackwell.

Sachs-Stepanova O. and Coley J.D. (2006): "Envy and jealousy in Russian and English: Labeling and conceptualization of emotions by monolinguals and bilinguals". In: Pavlenko A. (ed.): *Bilingual Minds Emotional Experience, Espression, and Representation*. Clevedon, UK: Multilingual Matters, 209—231.

Schmid M., Köpke B., Keizer M. and Weilemar L. (eds.) (2004): *First Language Attrition*. Amsterdam: John Benjamins.

Schrender R. and Weltens B. (eds.) (1993): *The Bilingual Lexicon*. Amsterdam and Philadelphia: John Benjamins.

Selinker L. (1974): "Interlanguage". In: Richards J.C. (ed.): *Error Analysis: Perspectives on Second Language Acquisition*. London: Longman, 31—54.

Sharwood Smith M. (1983): "On first language loss in the second language acquirer: Problems of transfer". In: Gass S.M. and Selinker L. (eds.): *Language Transfer in Language Learning*. Rowley, MA: Newbury House Publishers. Inc., 222—231.

Sinaiko H. and Gerver D. (eds.) (1977): *Proceedings of the NATO Symposium on Language Interpretation and Communication*. New York: Plenum.

SPELKE E.S. and TSIVKIN S. (2001): "Language and number: A bilingual training study". *Cognition* 78: 45—88.

SPIVEY M.J. and VIORICA M. (1999): "Cross talk between native and second languages: Partial activation of an irrelevant lexicon". *Psychological Science* 10: 181—184.

TSIMPLI I., SORACE A., HEYCOCK C. and FILIACI F. (2004): "First language attrition and syntactic subjects: A study of Greek and Italian near native speakers of English". *International Journal of Bilingualism* 8: 257—277.

TORRANCE P.E. (1974): *Torrance Tests of Creative Thinking*. Bensenville, IL: Scholastic Testing Service.

WIERZBICKA A. (1999): *Emotions Across Cultures and Languages*. Cambridge: Cambridge University Press.

YELLAND G.W., POLLARD J. and MERCURI A. (1993): "The metalinguistic benefits of limited contact with a second language". *Applied Psycholinguistics* 14: 423—444.

ZAMPINI M.L. and GREEN K.P. (2001): "The voicing contrast in English and Spanish: The relationship between perception and production". In: NICOL J.L. (ed.): *One Mind, Two Languages*. Oxford: Blackwell, 23—48.